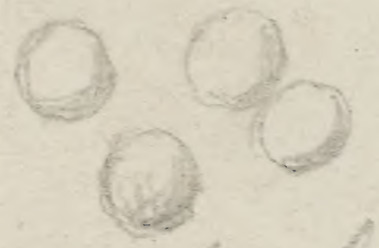
on vitis Clinton Grape leaves
Prof Burrill, Illinois

Dec 10 1883

Spores × 415 0.009 –
= 0.01 mm

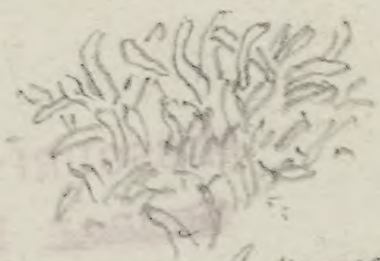


black conceptacula
× 60 = 0.8 mm diam

2 Groups – on discolored
brownish spots, with darker
margin

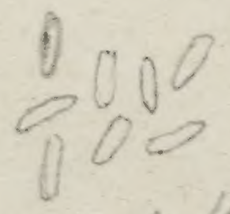
0.005 mm
– 0.006

× 415



mass of mycelium seen
repeatedly

on Clinton Bark



seen once

0.008 – 0.009 mm
long
× 0.002 wide

single floating
bodies with strong refractive power

all these seen in Conidia gro
a conceptacle
on bark

0.1 – 0.13 mm

conceptacle

66
60
0.1

288

0 1 2 3 4 5 6 7 8 9 10
cm
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MO

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Smith & Gris
DRUGGISTS
Corner Fifth and Market Streets

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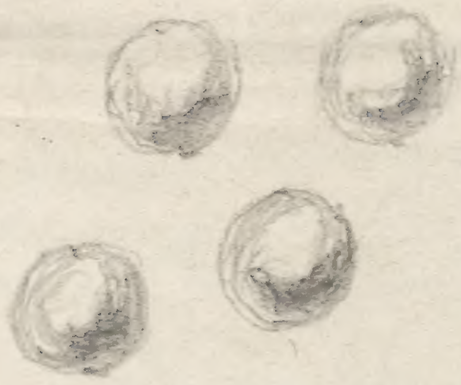
Phoma minuta
on Elvira grapes
at Ithaca Dec 10 1883

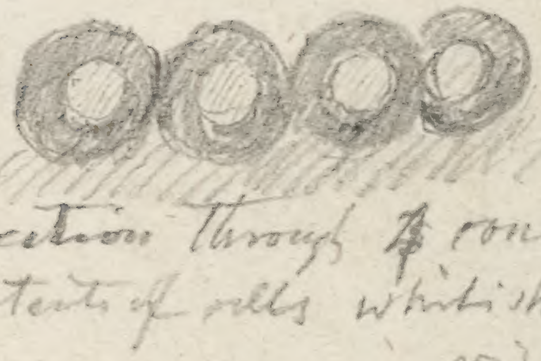
Dec 10 1883



conceptacles on berries, dead shriveled

×60
none of them open

$\frac{7\ mm}{60} = 0.12\ mm$ diam



cells destroyed
section through A conceptacle
contents of cells whitish no spores
visible

289

MISSOURI BOTANICAL GARDEN
ARCHIVES ERDMANN HERBARIUM

Missouri Botanical Garden
George Engelmann Papers

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(Phylloxera) 290

Grapevine disease in France, Provence

Probably since 1863 — [engagement en 1863; Planchon Phyll. 1874 p. 5

Certain by 1866 near Arles

1867. the little knots on the roots were noticed, but only

1868. July 15 they were recognized by Planchon as insects

History in Riley's paper in Popular Science Monthly May 1874
& in Planchon's paper (Revue des deux Mondes Febr 1874) p. 5

J H L Richter in Schmidt's Jahrbücher

Octob 1871 known nothing of Mexican origin

0 1 2 3 4 5 6 7 8 9 10
cm
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MO

Deutsche Apotheke.

HENRY DIERS,

APOTHECARY,

South East Corner Fifth and Biddle Streets,

ST. LOUIS. MO,

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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MO

1881

Garden Chronicle
Aug 20 1881

Before the invasion of Phylloxera
there were in France 2.200.000 hectares
(1 hectare nearly 2½ acres ; therefore 5.500.000 acres)
planted as vineyards

Of these in 1881 500.000 are destroyed
and 500.000 greatly attacked — together
nearly one half of the whole

291

1 acre = 42 ares 4 centiares (Aberdeen) = 0.42 hectare
therefore 1 hectare = 2.38 or about 2/3 acre

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Laliman was the first to
discover the resistance of American
Vines in Europe and Riley in
America

So says Planchon Phylloxera Report
1873 p. 4
Ch. 5th he speaks of the grafting on American stock

Planchon was in America 1873 Aug-Oct

0 1 2 3 4 5 6 7 8 9 10
cm
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MO

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Rock Lice were found on all species
really injurious only in a few of the Eastern Counties 1874
Leaf-Lice were not observed.

292 B

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN HERBARIUM

The finest Laurel ever introduced.
RHODODENDRONS:
All kinds and all sizes.
STANDARD RHODODENDRONS:
You may select from thousands.
HARDY TREES, SHRUBS, ROSES, &c.
For general planting, acre after acre.

Intending planters are invited to come down and see the stock. The Nursery is ten minutes from Sunningdale Station, S.-W. Railway.

CHARLES NOBLE, Bagshot.

THE NURSERIES, DUMFRIES.
(Established 1787.)

Our Stock, which is one of the largest in Scotland, comprises FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.; also a very large and splendid Stock of THORN QUICKS, for Hedging and for filling up Gaps.

The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. Prices on application.

THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

LAPAGERIA ALBA (the best White variety), from 10*s*. 6*d*. each; RUBRA (the best Crimson variety), from 7*s*. 6*d*. each; a few extra strong plants, price on application to

R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham.

R. H. V.'s pocket CATALOGUE of Herbaceous and other Hardy Plants free on application.

WILLIAM EVANS,
SEEDSMAN
to the Council of Agriculture, Montreal, Canada.

Exporter of RED and ALSIKE CLOVER, TIMOTHY SEED, PEAS, BEANS, OATS, &c.
Samples and prices on application.

Cable address:—W. EVANS, Montreal.

GRAPE VINES.—All the leading kinds in finely ripened canes, details on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, S.W.

APPLES, Standard and Pyramid; PRIVET and HAZEL, 3 feet to 4 feet; QUICK, 2-yr., fine. Price per 1000 to

CHAS. AND J. W. TOWNSEND, Nurserymen, Fordham, Cambridgeshire.

ABIES DOUGLASII, 10 to 12 inches, transplanted, 16*s*. per 100.
ABIES DOUGLASII, 3 to 3½ feet, transplanted, 50*s*. per 100.
,, ,, 4 to 5 feet, 75*s*. per 100.
ESCALLONIA MACRANTHA, 1 foot, 10*s*. per 100.
CEDARS. Red, 8 to 12 inches, 1-yr. transplanted, 10*s*. per 100.
CUPRESSUS LAWSONIANA, 2½ feet, 30*s*. per 100.
PINUS INSIGNIS, 3-inch pots, 7*s*. per 100.
,, NORDMANNIANA, 6 to 8 inches, 12*s*. per 100.
CEDRUS DEODARA, 4 to 5 feet, 18*s*. per dozen.
,, ,, 6 to 7 feet, fine, 36*s*. per dozen.
PICEA NOBILIS, 4 feet, 60*s*. per dozen.
,, ,, 5 feet, 70*s*. per dozen.
THUIA LOBBII, 2½ to 3 feet, 60*s*. per 100.
,, ,, 4 to 5 feet, 12*s*. per dozen.

Catalogues free on application.
GARLIES MITCHELL, Nurseryman, Stranraer.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1*d*. stamp.

Selection of 100 good showy varieties for 25*s*.

R. SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

R. AND A. MORRISON, The Nurseries, Elgin, N.B., offer:—
ABIES DOUGLASII, 1-yr., very fine, from Scotch seed.
SCOTCH FIR SEED, guaranteed True Native, our own collecting, and taken out of cone on our own kilns.
Samples and prices on application.

SEAKALE, exceptionally fine Roots for Forcing, 2*s*. 6*d*. per dozen, 16*s*. per 100.

ASPARAGUS, strong, for Forcing, 12*s*. per 100; specially selected ditto, 16*s*. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CABBAGE, CAULIFLOWER, LETTUCE PLANTS, &c., Autumn sown, best varieties, in any quantities. LIST, and printed copy of many recent (1882) Testimonials, on application. Prices moderate, no charge for packages.—EDWARD LEIGH, Dunsfold, near Godalming.

JOSEPH TREMBLE AND SON, NURSERYMEN, 1, Market Square Penrith, offer the followfng:—
LARCH, 2½ to 3 feet.
SCOTCH, 1½ to 2 feet.
THORNS, 1½ to 2 feet, strong.
All healthy and well rooted. Price on application.

R. AND G. NEAL, NURSERYMEN, SEEDSMEN, and CONTRACTORS, Wandsworth Common, S.W., respectfully invite an inspection of the large and varied Stock of SHRUBS, FOREST, ORNAMENTAL, FRUIT and ROSE TREES grown at their Nurseries, which are now in fine condition for transplanting. All plants delivered free by own vans, within 6 miles of the Nursery. Builders supplied at Trade Prices. CATALOGUES on application.

The Nurseries are within 1 mile of the Clapham Junction and Wandsworth Common Stations.

8000 **Winter-Flowering Carnations.** 8000

TWELVE GOOD PLANTS, in six best varieties, in 54's, 7*s*. 6*d*. per dozen, 50*s*. per 100; in 48's, 15*s*. and 18*s*. per dozen, £5 and £6 per 100.

See CATALOGUE.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

STEPHANOTIS FLORIBUNDA.—Good plants in 48's, 2*s*. each, 18*s*. per dozen, £7 per 100. Prices of larger on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Cissus

H. make special offers of their fine selected stock of SEEDS, raised this season with the utmost care and attention. The quality is very fine, and the prices will be found unusually low.

Seed-Growing Establishment, Wisbech.

Special Culture of

FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.

THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

ROSES AND FRUIT TREES. — Fine Pyramid APPLES and PEARS of the hardiest and best cropping varieties only, 6*s*., 9*s*., 12*s*., and 18*s*. per dozen. Dwarf trained trees, 24*s*. and 30*s*. per dozen, all with splendid fibrous roots.

PLUMS and CHERRIES, Pyramids, 12*s*., 18*s*., and 24*s*. per dozen. Dwarf trained trees, 30*s*. per dozen.

RED and BLACK CURRANTS, 2*s*. and 3*s*. per dozen.

RASPBERRIES, 1*s*. 6*d*. and 2*s*. per dozen, 8*s*. and 10*s*. per 100.

STRAWBERRIES, 2*s*. 6*d*. per 100. CATALOGUES free.

LA GRIFFERAIE ROSE CUTTINGS for Stocks, 1*s*. per 100, 7*s*. 6*d*. per 1000, cash.

DWARF H.P. ROSES, all the leading varieties, 7*s*. per doz., 50*s*. per 100. CATALOGUES free.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Standard and Dwarf Roses.

W. B. ROWE AND CO. (Limited) have to offer a few thousands of the above, which are unusually fine; they also call particular attention to the large stock of FRUIT TREES—Standards, Pyramids, Dwarf-trained and very fine Horizontal Fruiting Apples and Pears.

Barbourne Nurseries, Worcester.

Planting Season.

ANTHONY WATERER begs to invite attention to the following well grown and properly rooted NURSERY STOCK:—

AUCUBA JAPONICA, 1½, 2, and 3 feet. Thousands.
BOX, Green and Variegated, 2, 3, 4, 5, 6, and 7 feet. Thousands.
YEWS, English, 2, 3, 4, 5, 6, 8 to 10 feet. Thousands.
,, Golden, all heights up to 10 feet, and various shapes—Globes, Pyramids, &c. Thousands.
,, Irish, 5, 6, 7, to 10 feet.
JUNIPERS, Chinese, 5, 6, 7, to 10 feet.
PICEA PINSAPO, 5, 6, 7, to 10 feet.
,, NORDMANNIANA, 5, 6, 7, to 10 feet.
SPRUCE FIRS, well furnished, 3, 4, 5, 6, and 7 feet. Many thousands.
,, Black, 3, 4, and 5 feet.
SPRUCE, Hemlock, 4, 5, and 6 feet.
WEARE'S ARBOR-VITÆ, 4, 5, 6, and 7 feet.
HOLLIES, common Green, of all heights, up to 10 feet. Thousands.
,, Green, of sorts, such as LAURIFOLIA, MYRTIFOLIA, HODGINS', ALTACLARENSE, Yellow-berried, &c. An enormous Stock.
,, Variegated, from 3 to 5, 6, 7, 8, and 10 feet.
,, Waterer's, beautiful Specimens.
,, Golden Queen, up to 10 feet. Hundreds.
,, Silver Queen, up to 10 feet. Hundreds.
,, Perry's Weeping Standards and Pyramids.
,, Golden Weeping Standards and Pyramids.
The Stock of Hollies of various kinds comprises many thousands, and affords a choice quite unequalled.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, 3, 4, 5, 6, 7, and 8 feet. Thousands.
,, ,, GRACILIS, 3 and 5 feet.
,, ,, ARGENTEA, 3 and 5 feet.
,, ,, LUTEA, hundreds of fine plants, 3, 4, and 5 feet high.
RETINOSPORA PLUMOSA AUREA, 3, 4, and 5 feet.
,, OBTUSA AUREA, 4, 5, 6, and 7 feet.
,, PISIFERA AUREA, 3 and 4 feet.
THUIOPSIS DOLABRATA, 3, 4, 5, and 6 feet. Hundreds.
BEECH, Purple, 6 to 10 and 12 feet. Thousands.
LIMES, 10, 12, 14, 15, and 16 feet. Thousands.
PLANES, 10 to 20 feet.
MAPLE, Norway, 10 to 15t eet.
CHESTNUT, Horse, 10 to 16 feet.
,, Scarlet, 10 to 16 feet.
POPLAR, CANADENSIS NOVA, 10 to 16 feet. Thousands.
OAKS, Scarlet American, 10 to 12 feet.
ACER DASYCARPUM, 10 to 16 feet.
,, SCHWEDLERII, 10 to 12 feet.

And a vast and Miscellaneous Stock of Flowering DECIDUOUS SHRUBS and EVERGREENS, which intending purchasers are respectfully invited to come and see.

Knap Hill Nursery, Woking, Surrey.

Order from your Seedsman

LAXTON'S NEW BEANS,
JOHN HARRISON and GIRTFORD GIANT.
Particulars in previous Advertisement, or post-free from
THOMAS LAXTON, Bedford.

GRAPE VINES and ORCHARD HOUSE TREES in POTS. — GRAPE VINES, extra strong, short-jointed and well ripened; Planting Canes, 3*s*. 6*d*. to 5*s*. each; extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. ORCHARD-HOUSE TREES, fruiting in pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1*d*. stamp.—RICHARD SMITH AND CO., Nurserymen and Seedsmen, Worcester.

Planting Season.

R. AND A. MORRISON, The Nurseries, Elgin, N.B. (Established 1822), invite the attention of Planters to their extensive Stocks of Seedling and Transplanted FOREST TREES, ORNAMENTAL TREES and SHRUBS. They have a very large and healthy Stock of Seedling and Transplanted LARCH and SCOTCH FIR, which they guarantee as true native, being the produce of Seed collected by them in the North of Scotland.

CATALOGUES and Samples on application.

ROSES, well rooted, many-shooted, truly named, of matured growth, and of the best kinds.

DWARFS, R. S. & Co.'s selection, 8*s*. per dozen, 60*s*. per 100.
STANDARDS, 21*s*. per dozen.

Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Order from your Seedsman

LAXTON'S NEW PEAS,
EVOLUTION and WILLIAM HURST.
Particulars in previous Advertisement, or post-free from
THOMAS LAXTON, Bedford.

EATON, NORWICH,

Having given instructions to

MESSRS. PROTHEROE AND MORRIS to SELL by AUCTION, WITHOUT RESERVE, on February 13 next, and following days, almost the whole of their thriving outdoor

NURSERY STOCK,

HEREBY GIVE NOTICE, that they will not be prepared to Receive Orders for TREES, SHRUBS, PLANTS, &c., after the 31st of this month—December 18, 1882.

The remaining portion of the Stock (including the splendid collection of TEA and NOISETTE ROSES in Pots) will probably, so far as the Pot Plants are concerned, be SOLD by AUCTION in May or June next.

Order from your Seedsman

LAXTON'S SANDY PRIZE ONION,
AND OTHER NOVELTIES.
Particulars in previous Advertisement, or post-free from
THOMAS LAXTON, Bedford.

FLOWERING SHRUBS, in great variety, such as Hydrangeas, Lilacs, Deutzias, Spiræas, Cytisus, Broom, Pyrus, Berberis, Double Cherry, Scarlet Hawthorns, Gueldres Rose, &c., 8*s*. per dozen, 50*s*. per 100.

Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Fruiting Pines.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a fine stock of the above, which they are in a position to offer at low prices; they are principally Queens, Smooth Cayenne, and Black Jamaica.

ROSES.—ROSES.—ROSES.—50,000 to select from, in all the leading sorts, in fine strong plants, including both Standards and Dwarfs; also extra strong Maréchal Niel, Climbing Devoniensis, Cheshunt Hybrid, Madame Berard, Reine Marie Henriette, from 12 to 15 feet long, in pots, and other Teas in pots, fine for forcing.

Price and LISTS post-free.

THOMAS HORSMAN, Rose Mount Nursery, Ilkley Leeds.

GEORGE DAVISON begs to offer to Planters the following well-grown TREES, at a great sacrifice, in consequence of wishing to retire from business:—

ABIES DOUGLASII, 4 to 8 feet.
CEDRUS DEODARA, 3 to 6 feet.
ARBOR-VITÆ LOBBII, 7 to 10 feet.
ASH, 1½ to 2½ feet, 200,000 (Hop-pole Planting).
AUSTRIACA FIRS, well transplanted, 2 to 4 feet.
BEECH, 6 to 7 feet.
CUPRESSUS LAWSONIANA, 7 to 9 feet.
HORSE CHESTNUTS, 7 to 9 feet.
LARCH, fine, 2 to 5 feet, 400,000.
LAUREL, colchic, caucasica, and rotundifolia, 20,000.
,, Portugal, 2 to 3 feet.
QUICK, transplanted, fine, 2 to 4 feet, 500,000.
ROSES, Standard and Dwarf, H.P. and Teas, many thousands.
SILVER FIR, 3 to 5 feet.
SCOTCH FIR, 1½ to 2½ feet.
SPRUCE, 2 to 5 feet.
THUIOPSIS BOREALIS, fine specimens, 5 to 9 eet.
FRUIT TREES—APPLES, fine, tall, for Orchards, many thousands (speciality).

Price on application to
The White Cross Nurseries, Hereford.

CEDRUS DEODARA.—"The Indian Cedar."—Beautiful specimen trees, frequently transplanted and well-rooted, offered at the undermentioned low prices, to effect a clearance:—

5 to 6 feet, 48*s*. per dozen	7 to 8 feet, 72*s*. per dozen
6 to 7 feet, 60*s*. per dozen	8 to 10 feet, 84*s*. per dozen

ABIES DOUGLASII.—One of the most noble trees grown, well-rooted specimens:—

6 to 7 feet, 3*s*. 6*d*. each; 36*s*. per dozen
7 to 8 feet, 4*s*. 0*d*. each; 42*s*. per dozen
8 to 9 feet, 5*s*. 0*d*. each; 60*s*. per dozen

The above-named trees are highly suitable for Avenues, Lawns, Shrubberies, or Woods, and the opportunity of purchasing on such terms rarely occurs.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES, grown from eyes this year, suitable for fruiting in pots and planting.

CATALOGUES free. The Trade supplied.
Also a fine stock of TEA ROSES.

R. H. VERTEGANS' New Double CINERARIAS, the finest in cultivation. The set of 12 distinct varieties will be sent, packing and carriage free, on receipt of Post-office Order for 31*s*. 6*d*.

VORTIGERN, the finest double crimson, 3 plants showing flower free for 10*s*. 6*d*., 1 for 5*s*.

Chad Valley Nurseries, Edgbaston, Birmingham.

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Gloxinia, Leeds Prize.

This magnificent erect flowering strain is probably unequalled. It has a strong robust constitution, produces flowers 3½ to 4 inches in diameter, and embraces upwards of 50 distinct and charming varieties. Wherever exhibited this strain has, without a single exception, carried off the first prize. In 1879 a leading London Nurseryman gave 20 guineas for the 6 plants shown at Leeds. This fact will give some idea of its merits. The strain has been greatly improved since then, and the seed now offered will produce plants very much superior. Price, per packet, 2*s.* 6*d.*

Wallflower, Charles Kershaw's Brilliant Dark.

This strain is unsurpassed, and may be relied upon to produce not one light-coloured flower. C. K. has selected it with the greatest care for many years, and has now got it to such perfection that it cannot be surpassed. Per packet, 6*d.*

New Celery, Thornhill Prize Red.

This is the stock of a noted exhibitor, who in 1881 and 1882 took upwards of 70 prizes with this variety. Wherever exhibited it has without an exception carried off the first prize; it never runs, is early, large, solid and crisp, is of fine flavour, and keeps well; is equally good for exhibition or general use. Per packet, 1*s.* Stock very limited.

CHAS. KERSHAW,
THE SLEAD SYKE NURSERIES,
BRIGHOUSE.

AN OFFER NEVER BEFORE MADE.

CHRISTMAS TREES, 11 to 17 feet,
PERFECT SPECIMENS.
ABIES NORDMANNIANA, 10*s.* 6*d.* to 21*s.*

CHARLES NOBLE, Bagshot.

SEAKALE—SEAKALE.

VERY LARGE.
ANY QUANTITY.

Apply to the Grower for Particulars.

W. BAGLEY,
MILLSHOT FARM, FULHAM, S.W.

FOREST TREE SEEDLINGS.

One of the largest and finest stocks to choose from, including over three millions of two Seedling LARCH, with sound leaders—a splendid lot. Samples and prices post-free on application to

PETER S. ROBERTSON & CO.,
NURSERYMEN, EDINBURGH.

RICHARD SMITH & Co. WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour, and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1*d.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST OF STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1*d.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for 1*d.* stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

RICHARD SMITH & Co. WORCESTER

AND CULTURAL GUIDE, 1883.

A full and complete List of all approved varieties of

VEGETABLE AND FLOWER

SEEDS,

and all the genuine Novelties of the season.

Forty-eight Pages of most valuable information, post-free for two stamps.

J. CHEAL & SONS,
CRAWLEY, SUSSEX.

TO THE TRADE.

A very large quantity of fine

Half-Standard and Dwarf-Standard

ROSES,

Of all the leading sorts, to offer cheap.

Apply to—

BENJAMIN R. CANT,
THE CHAMPION ROSE GROWER,
COLCHESTER.

LARGEST ROSE GARDENS IN ENGLAND.

CRANSTON'S NURSERIES.

(Established 1785.)

EXTRA STRONG ROSES,

in 8-inch pots, for forcing.

HYBRID PERPETUALS, TEA SCENTED, and NOISETTES;

HALF-STANDARD ROSES,

HYBRID PERPETUALS, TEA SCENTED, &c.

List of Sorts and Price on application to

CRANSTON'S NURSERY and SEED CO.
(LIMITED),
KING'S ACRE, HEREFORD.

WHOLESALE SEED CATALOGUE.

We have now published our Wholesale CATALOGUE of Vegetable, Flower, and Agricultural Seeds, containing, also, all the best Novelties of the season. It may be had on application. All our Regular Customers should already have received a Copy by post; any not having done so, will oblige by letting us know.

WATKINS & SIMPSON,
EXETER STREET,
STRAND, W.C.
Seed and Trial Grounds, Feltham and Twickenham, Middlesex.

WEDNESDAY NEXT.

CATTLEYA MOSSIÆ

(AUTUMN-FLOWERING VARIETY).

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all the indented Leaves Tendrils

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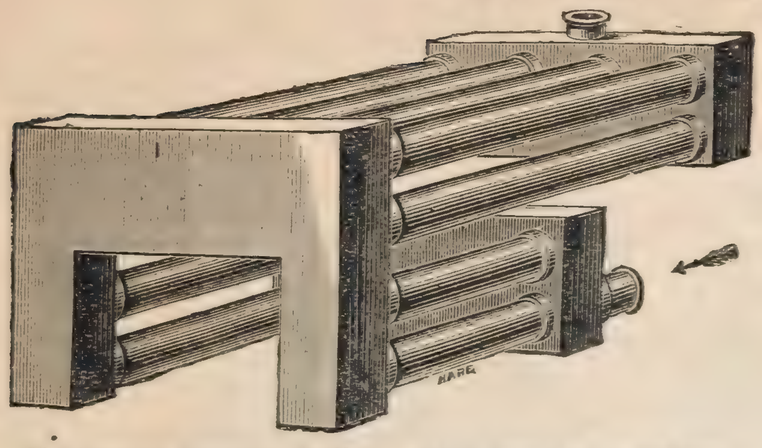

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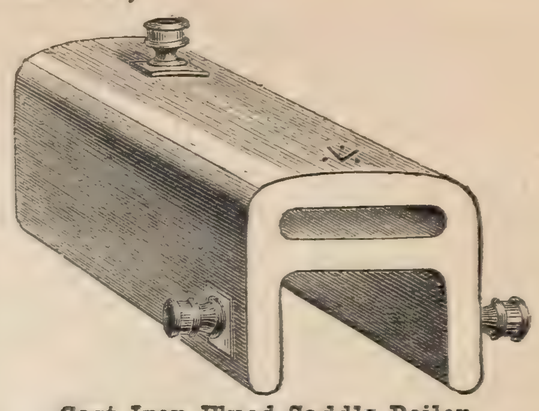

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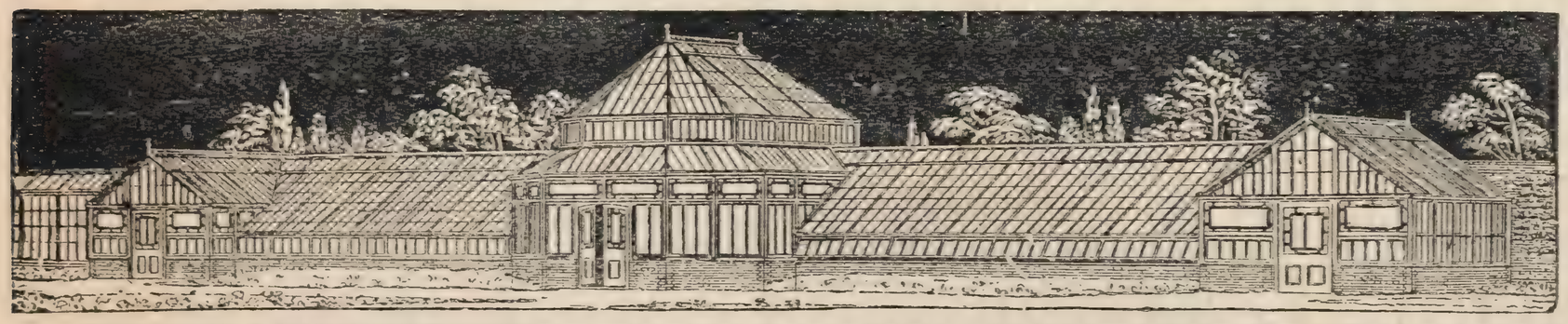

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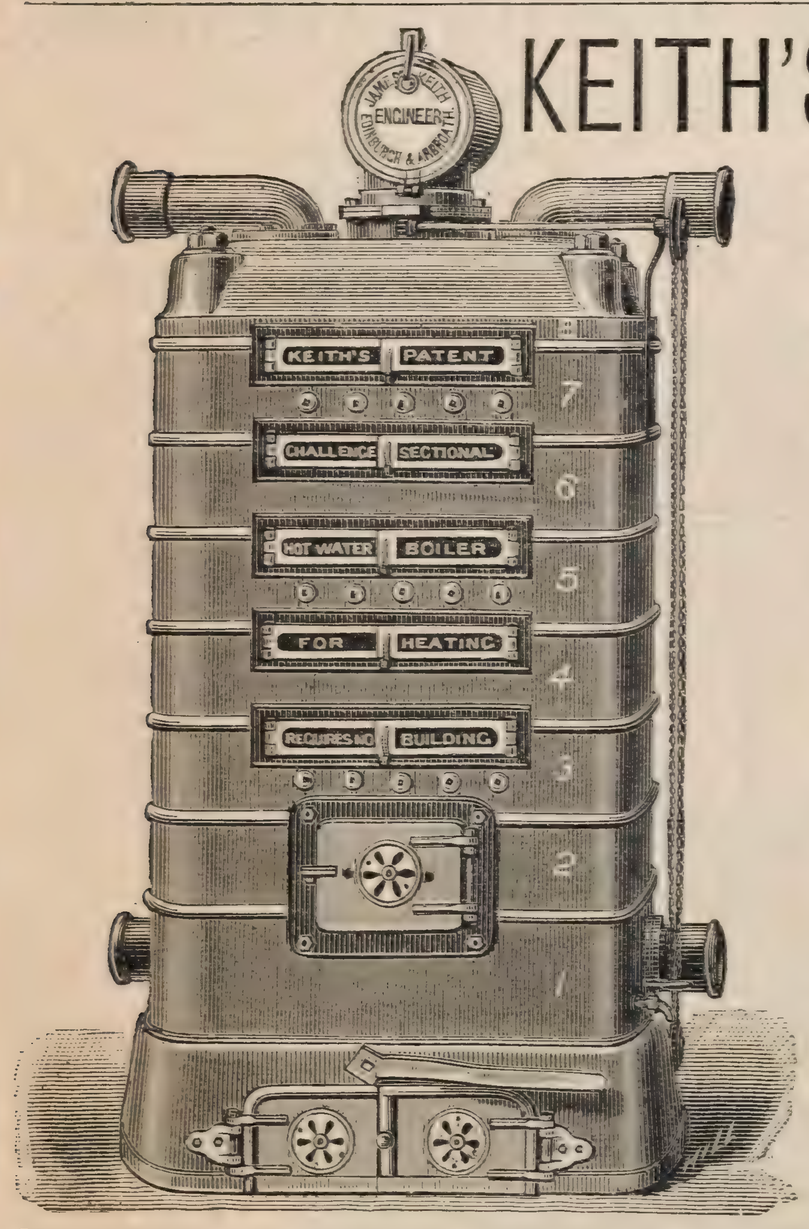

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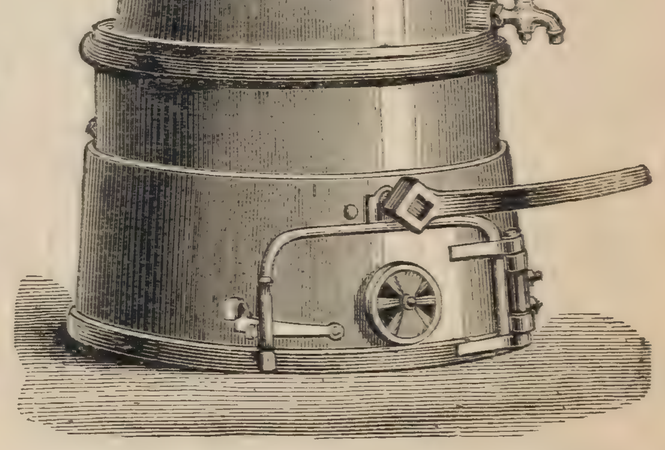

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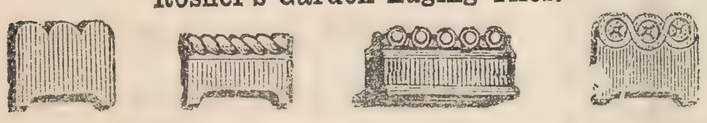

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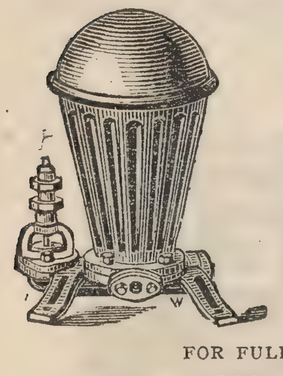

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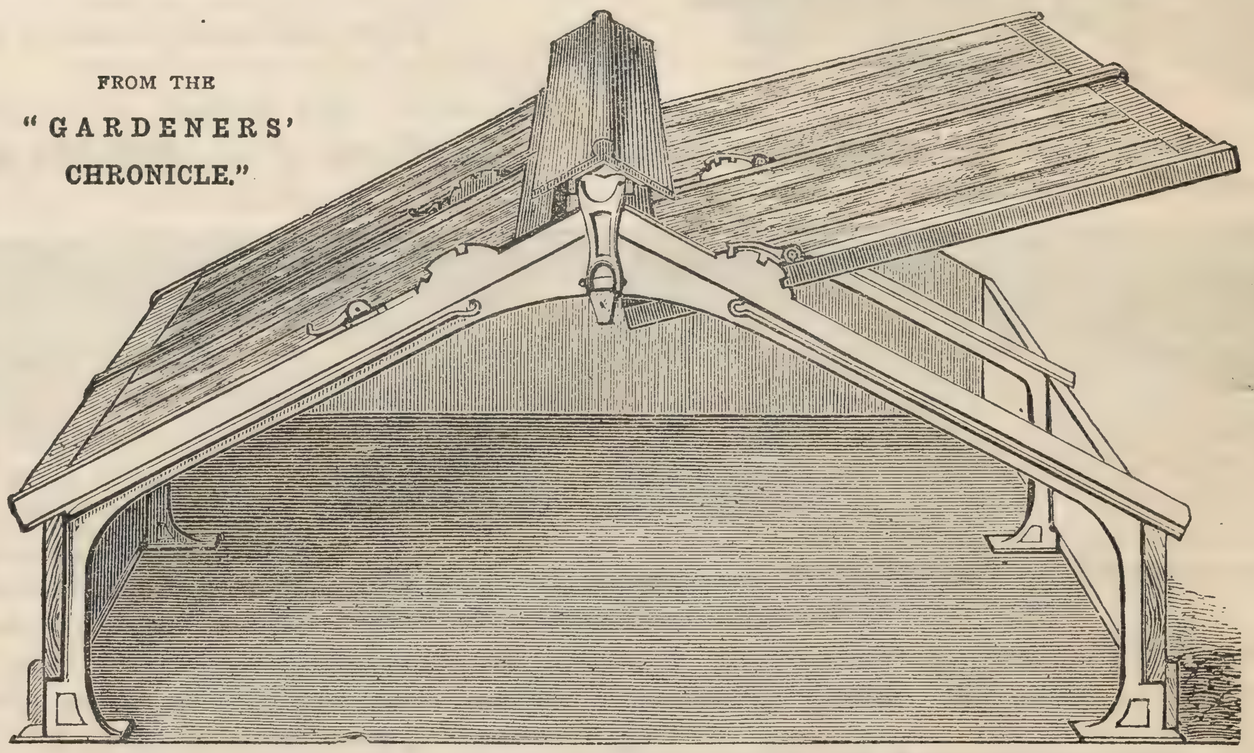

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Established 1841.

No. 470.—Vol. XVIII. { New Series. } SATURDAY, DECEMBER 30, 1882. { Registered at the General Post-office as a Newspaper. } Price 5d. Post-free, 5½d.

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DEUTZIA GRACILIS, and strong QUICK for Hedging. Prices and samples on application to

WILLIAM FLETCHER, Ottershaw Nurseries, Chertsey.

GARDENIAS, fine healthy, in 48's, showing flower, 14*s*. per doz. Well grown DRACÆNA terminalis, for Decorating, in 32's, 45*s*. per doz. GLOBE ARTICHOKE, 2*s*. per doz.—H. R. MARSHALL, Nursery, Barnham, Arundel.

East Lothian Stock.

JOHN LAMONT AND SON offer the above in Crimson, Scarlet, Purple, and White, saved from plants two years old, grown in pots, and under glass. Warranted to produce over 80 per cent. of Doubles. Large packets, 2*s*. 6*d*. and 5*s*. each.

2, Hope Street, Edinburgh.

To Noblemen and Gentlemen.—Park Planting.

WM. MAULE and SONS can supply strong transplanted true BRITISH OAKS, 10 to 12 feet, at 30*s*. per dozen; very strong, single and double White, Crimson, and Scarlet THORNS, 7 to 8 feet, at 30*s*. per dozen.

☞ Carriage free to all stations in direct communication with the Midland and Great Western.—The Nurseries, Bristol.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.

Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

SCHOOLMASTER, the best new Apple, and good for exposed situations. First-class Certificate Royal Horticultural Society. Strong Maidens, 7*s*. 6*d*. each; coloured plates, six stamps. Particulars post-free from

THOMAS LAXTON, Bedford.

New Seedling Apple, The Queen.

FIRST-CLASS CERTIFICATE.

SALTMARSH AND SON are now supplying strong Maiden trees of this excellent variety, without which no collection, however small, will be complete, at 3*s*. 6*d*. each; also a few strong 2-yr. Pyramids, on Crab and Paradise stocks, at 5*s*. to 7*s*. 6*d*. each. Price to the Trade on application.

The Nurseries, Chelmsford, Essex.

To Nurserymen.

THE QUEEN, THE NEW APPLE.—The owner of the original seedling, having completed his engagement with Messrs. Saltmarsh, will sell all the scions for 1883, by tender. Specimens of the fruit can be seen and tried. W. W. BULL, Ramsden, Essex.

PRIZETAKER PEAS, Five Sacks for sale; also a few tons of RED INTERMEDIATE CARROTS.

A. E. WOODBRIDGE, Woodcote, Chichester.

POTATOS—POTATOS.—Best and cheapest house in Berkshire for all kinds of Seed and Eating Potatos. A Complete Descriptive CATALOGUE of the above, together with Hints on Potato Growing, gratis and post-free on application.

C. FIDLER, Potato Grower, Reading.

To the Trade.

SEED POTATOS.

H. and F. SHARPE'S Wholesale LIST of SEED POTATOS is now ready, and will be forwarded on application. It comprises the best varieties in cultivation, of the finest quality, free from disease, and selected specially for seed purposes. The prices will be found exceptionally low.

Seed-Growing Establishment, Wisbech.

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SALES BY AUCTION.

Monday Next.

5000 LILIUM AURATUM, just received from Japan, in fine condition.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, January 1, at half-past 12 o'Clock precisely, an importation of 5000 bulbs of LILIUM AURATUM, just received from Japan, in fine condition; a consignment of 3000 TIGRIDIA GRANDIFLORA from New Jersey; a consignment of BULBS and PLANTS from Algiers, hardy ORCHIDS, 1000 American TUBEROSES, Choice Hybrid BEGONIAS, Seedling AMARYLLIS, 200 fine clumps of LILY of the VALLEY, BELLADONNA LILIES, DUTCH BULBS, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

CATTLEYA MOSSIÆ (Autumn-flowering variety).

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 3, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., a grand importation of CATTLEYA MOSSIÆ (Autumn-flowering variety), in fine masses and fine condition, collected by Dr. Ernst and our Mr. John Carder (per s.s. *Nile*); ODONTOGLOSSUM CRISPUM (Alexandræ), in fine masses and good breaks: ONCIDIUM PAPILIO MAJUS, CATTLEYA MOSSIÆ, HUNTLEYA VIOLACEA, &c., all in the best possible condition.

On view morning of Sale, and Catalogues had.

Wednesday Next.

HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 3, at half-past 12 o'Clock precisely, choice named Standard and Dwarf ROSES of sorts, Pyramid and Dwarf-trained FRUIT TREES, HOLLIES, Hardy CONIFERS, &c.; CARNATIONS, PICOTEES, PINKS, and other Hardy Herbaceous BORDER PLANTS, BULBS from Holland, &c.

On view morning of Sale, and Catalogues had.

Sale Thursday Next, January 4, 1883.

CATTLEYA TRIANÆ, very finest varieties.
ODONTOGLOSSUM VEXILLARIUM, very finest varieties.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 4, 1883, at half-past 12 o'Clock precisely, an immense importation of CATTLEYA TRIANÆ, very finest forms, and in grand health and masses; also an extra lot of ODONTOGLOSSUM VEXILLARIUM—the plants are from the same locality from whence our importation came among which three O. vexillarium superbum have flowered; together with an importation from Mexico, and a specially grand lot of ODONTOGLOSSUM ALEXANDRÆ, in finest large flowered, round-petaled varieties, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

WANTED TO RENT, a NURSERY, near London. Address, with full particulars, Mr. POTTS, 3, Clyde Villas, St. Mark's Road, Hanwell, W.

To Nurserymen and Others.

FREEHOLD LAND, Leyton, containing Greenhouse 80 feet by 18, Hot-water Pipes, and large stock of Plants for Propagating for ensuing season.

WINNINGTON, Skelton's Lane, Leyton.

TO BE LET, GARDENS—about 6 acres, and a quantity of Glass, at Theobald's Park, Waltham Cross, Herts.

May be seen by applying for an order to Messrs. BAKER, FOLDER AND UPPERTON, 52, Lincoln's Inn Fields, W.C.

PALM SEEDS.—Just arrived, in good condition, fresh seeds of three handsome Kentias from Lord Howe's Island: K. Fosteriana, 20*s.* per 100; K. Belmoreana, 20*s.* per 100; K. Canterburyana, 40*s.* per 100. These Kentias are now known to be some of the best of the Colder Palms, and therefore most suitable for Greenhouse and Conservatory decoration.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

ROSES.

Woodlands Nursery, Maresfield, Sussex.

WM. WOOD AND SON offer from a very extensive Stock, left to their own selection:—

STANDARD and HALF-STANDARD ROSES, at 18*s.* per dozen.

DWARFS, 8*s.* per dozen, or 60*s.* per 100.

DWARF TEA ROSES in POTS, 12*s.* to 18*s.* per dozen.

A very fine collection of various kinds of SPIRÆAS, WEIGELAS, DEUTZIAS, HYDRANGEAS SAMBUCUS, VERONICAS, &c., at 6*s.* per dozen, 40*s.* per 100.

Post-office orders made payable to WILLIAM WOOD AND SON, Maresfield, Sussex.

Special Offer.

H. THORNTON AND CO. have the pleasure of quoting the undermentioned at lowest cash prices:—

SEAKALE ROOTS for forcing from, 70*s.* per 1000.
,, ,, for planting, 40*s.*, 56*s.*, and 60*s.* per 1000.
RASPBERRY CANES, Carter's Prolific, 40*s.* per 1000.
HERB ROOTS, 15*s.* per 100.
JERUSALEM ARTICHOKES, 3*s.* per bushel.
GLOBE ARTICHOKES, 4*s.* per dozen.
RHUBARB ROOTS for forcing, 50*s.* per 100.
,, ,, for planting, 30*s.* per 100. [1000.
ASPARAGUS ROOTS, 1-yr. and 2-yr. old, 20*s.* and 30*s.* per

To the Trade and Others.

THE PLANTING SEASON.

LARCH FIR, extra fine, strong, transplanted, 2 to 3 feet, and 3 to 4 feet.
ASH, MOUNTAIN, 8 to 10 feet, and 10 to 12 feet.
WALNUTS, STANDARD, very fine.
QUINCES, STANDARD, very fine.
CHERRIES, extra fine strong Dwarf-trained May Duke.
APPLES and PEARS, extra fine Pyramidal.
AMPELOPSIS VEITCHII.
JERUSALEM ARTICHOKES.

Prices on application. Address, WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

To Planters.

JAMES BIRD offers the undermentioned Forest stuff, price on application:—

LARCH FIR, 5 to 6 feet.
SCOTCH FIR, 1½ to 2 feet, and 2 to 3 feet.
SPRUCE FIR, 1½ to 2 feet, and 2 to 3 feet.
HAZEL, 4 to 5 feet.
ROSES, Standard and Dwarf.

The Nurseries, Downham.

EXTRA CHOICE SEEDS.

For Season 1883.

ELLIOTT'S PRIZE COCKSCOMB.—The best variety in cultivation, having been selected with great care for eighteen years. Was awarded a Cultural Certificate for two plants exhibited at South Kensington, August 2, 1876, by the Royal Horticultural Society; and has taken prizes for a number of years at the principal Horticultural Exhibitions in this district. Per packet, 1*s.* 6*d.*

ELLIOTT'S SELECTED FRENCH MARIGOLD.—This may be relied upon as being a very superior strain, selected from the best coloured and most perfectly formed flowers. The blooms are very large, and for beauty of marking and variety of colour cannot be surpassed. Per packet, 1*s.*

ELLIOTT'S "YORKSHIREMAN" CUCUMBER.—A new variety of very excellent quality, being remarkable for its solidity, showing, when cut, almost an entire absence of core. It is a very deep green, of perfect shape, and grows about eighteen inches long. It is a fine exhibition kind, a strong grower, and free bearer. Per packet of Six Seeds, 1*s.* 6*d.*

Trade price on application.

G. E. ELLIOTT, Seedsman, 97, Bradford Road, Huddersfield.

FINEST SEEDLING and TRANSPLANTED TREES.

ALDER, 3 to 4 feet, 18*s.* per 1000.
ASH, 2 to 3 feet, 16*s.* per 1000.
LARCH, 2-yr., extra, 3*s.* 6*d.* and 5*s.* per 1000.
,, 3 to 4 feet, 26*s.* per 1000; 4 to 5 feet, 30*s.* per 1000.
SPRUCE FIR, 2-yr., £7 per 100,000.
,, 1 to 1½ foot, 10*s.* per 1000; 1½ to 2 feet, 12*s.* per 1000.
SCOTCH FIR, 1 to 1½ foot, 12*s.* per 1000; 1½ to 2 feet, 15*s.* per 1000; 2½ to 3½ feet, 18*s.* per 1000.
PINUS AUSTRIACA, 2-yr., fine, 2*s.* 6*d.* per 1000, or £12 per 100,000.
,, LARICIO, 10 to 15 inches, 20*s.* per 1000; 1½ to 2 feet, 25*s.* per 1000; 2 to 3 feet, 30*s.* per 1000.
THORNS, 1½ foot, 10*s.* 6*d.* per 1000; 2 feet, 12*s.* per 1000; 2 to 3 feet, 13*s.* 6*d.* per 1000.
CRABS, 1-yr., extra, 3*s.* per 1000.
PEARS, fine, 1-yr., 5*s.* per 1000.

GARLIES MITCHELL, Stranraer.

TUBEROUS BEGONIAS.—JAMES KING (the celebrated Raiser of New Coleuses) having taken the above Begonias in hand for several years, has, by careful crossing, succeeded in obtaining a grand strain; having again made a series of crosses, begs to offer Seed from such in 2*s.* 6*d.* and 5*s.* packets; price to the Trade on application.—JAMES KING, Florist and Seed Grower, Rowsham, Aylesbury.

4000 Azaleas, Camellias, Ericas, and Epacris. 4000

AZALEA INDICA, in best varieties, for forcing, including Whites, well set with buds, 24*s*, 30*s.*, and 42*s.* per dozen, £8 to £15 per 100.
AZALEA MOLLIS, good bushy stuff of these invaluable plants for early forcing, in all shades of colour, 21*s.*, 30*s.*, and 40*s.* per dozen, £8 to £15 per 100.
HEATHS and EPACRIS, best varieties, well set with flower, 18*s.* and 24*s.* per dozen.
CAMELLIAS, in best varieties, including Whites, 25*s.*, 30*s.*, and 42*s.* per dozen, £9 to £15 per 100.

CATALOGUE free.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

LARCH, 2 to 3, and 3 to 4 feet, strong, transplanted. A large quantity to be sold.

EDWIN HOLLAMBY, The Nurseries, Groombridge, Tunbridge Wells.

Winter List.

JOHN LAING AND CO.'S New CATALOGUE of Roses, Fruit Trees, Vines, Ornamental and Forest Trees, Shrubs, &c., has been issued to all Customers. Copies gratis on application. Goods all first quality at moderate rates. Address

JOHN LAING AND CO., Nurseries, Forest Hill, S.E.

CHRYSANTHEMUMS.—We have been awarded Four First-class Certificates for our this season's novelties. Cuttings can now be had of the 20 extraordinary grand new varieties introduced by us this year, at 1*s.* 6*d.* each, or the set for 20*s.* Well rooted plants can also be had now of all the sorts, at 3*s.* 6*d.* each. See CATALOGUE (gratis) for description. Cuttings of the best older varieties, our selection, from 2*s.* per dozen.

S. DIXON AND CO., Amhurst Nurseries, Auton Street, Hackney, E.; and City Seed Warehouse, 34, Moorgate Street, London, E.C.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

RODGER, McCLELLAND AND CO. offer as under, prices, &c., on application:—

SALIX BASFORDIANA, the best of all the red-barked Willows, 5 to 7 feet.
,, NIGRA, black bark, 4 to 5 feet.
POPLAR, Canadian, 3 to 4, 5 to 6, and 6 to 8 feet.
LAUREL, COLCHIC, 1½ to 2, and 2 to 3 feet.
BERBERIS DARWINII, 1½ to 2, and 2 to 3 feet.
,, STENOPHYLLA, 2 to 3 feet.
,, ,, Hybrid, 1½ to 2 feet.
PINE, Austrian, extra transplanted, and very stout, 1 to 1½, 1½ to 2, 2 to 2½, and 2½ to 3 feet.
,, Corsican, 1 to 1½, 1½ to 2, 2 to 2½ feet.
PRIVET, oval-leaved, 1½ to 2, and 2 to 2½ feet.
,, Common, 1½ to 2, and 2 to 3 feet.
ASH, Mountain, 6 to 8, and 8 to 10 feet.
MAHONIA, 6 to 12, 12 to 18, and 18 to 24 inches.
PINUS EXCELSA, 18 to 24 inches.
CUPRESSUS MACROCARPA, 18 to 24, and 24 to 30 inches.
PICEA NORDMANNIANA, 9 to 12, 12 to 18, and 18 to 24 in.
COTONEASTER SIMONSII, 18 to 24, and 24 to 36 in.
,, HOOKERII, 18 to 24 inches.
ESCALLONIA ILLINITA, 6 to 9, 9 to 12, 18 to 30 inches.
,, MACRANTHA, 9 to 12, 18 to 24 inches.
,, INGRAMMI, 9 to 12, 18 to 24 inches.

76, Hill Street, Newry.

Special Cheap Offer.

ISAAC MATTHEWS AND SON are prepared to make a special offer to the Trade and Large Buyers. Samples and Price List on application:—

ASH, Common, 3 to 4 feet, 4 to 5 feet.
,, Mountain, 3 to 4 feet, 4 to 5 feet, 5 to 6 feet, 7 to 8 feet, 8 to 9 feet.
OAK, English, 1½ to 2 feet.
POPLAR, Black Italian, 3 to 4 feet, 4 to 5 feet, 5 to 6 feet.
SYCAMORES, 2 to 3 feet.
CHESTNUTS, Horse, 9 to 10 feet, 10 to 12 feet.
ELDER, Golden, 2 to 3 feet.
THORN QUICK, strong, 3-yr., 4-yr., strong.
HOLLIES, Hodgins', maderensis, Golden Queen, Silver Queen, Old Silver, myrtifolia, ovata, Shephardii, common Green, in all sizes.
LAURELS, Common, 12 to 18 inches, 1½ to 2 feet, 2 to 2½ feet, fine.
CUPRESSUS, in variety, from 1½ to 7 feet.
RETINOSPORA PLUMOSA, 1 foot, bushy.
YEWS, English, 18 to 24 inches, 2 feet, 2½ feet, 2½ to 3 feet.
AZALEA Pontica, 4 to 6 inches.
RHODODENDRONS, Hybrid and Pontica, 3 to 4 inches, 4 to 6 inches, 6 to 9 inches, 9 to 12 inches, 12 to 15 inches, 15 to 18 inches, 1½ to 2 feet, 2 feet; ditto, choice named sorts, bushy, in 100 varieties.
,, CUNNINGHAM'S WHITE, 9 to 12 inches, 12 to 15 inches, 15 to 18 inches.
,, CAUCASICUM PICTUM, 9 to 12 inches, 12 to 15 inches, 15 to 18 inches.
RHODODENDRON STOCKS, strong.
PANSIES, in 100 varieties.
IVY, Irish, 4-yr., strong.

The Nurseries, Milton, Stoke-on-Trent.

NEW ROSES of 1882, in pots.—Vendors' Selection, 30*s.* per dozen; Purchaser's, 36*s.* per dozen. The above comprise all the best English and French raised Hybrid Perpetuals, Perpetual Polyantha, Teas, Hybrid Teas, and Perpetual Moss.

ROSES of 1881, of above-named classes, 18*s.* to 24*s.* per dozen, in pots.

CHOICE ROSES.—Tea-scented, Hybrid Tea, Noisette, China, and Bourbon, 18*s.* to 24*s.* per dozen, strong plants in pots.

Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12*s.* to 24*s.* per dozen, strong plants.

Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Gardenias.

MESSRS. JOHN STANDISH AND CO.'S Stock of GARDENIAS was never so extensive or good as it is this season. They have thousands of plants to select from, in all sizes, from fine specimens in 18-inch pots to small plants in 60's. All clean and healthy, and to a large extent well set with buds for winter-flowering. VERY REASONABLE Prices will be quoted on application.

Royal Nurseries, Ascot, Berks.

HORIZONTAL TRAINED FRUIT TREES.—For extra sized Horizontal Trained Pears, which will cover bare walls, and come into bearing at once.

PYRAMID APPLES and PEARS and ESPALIER APPLES, extra transplanted, and in fruiting condition.

AUCUBA JAPONICA, beautifully coloured and very fine.

AUCUBA VERA, thickly set with berries.

Through trucks to any part of the United Kingdom. Plants and trees added to compensate for freight. Apply to GEORGE SMITH, The Dell Nursery, Rock Ferry, Cheshire.

STRAWBERRIES.—Strong roots for present planting and for fruiting next year, 4*s.* per 100. Descriptive LIST and price for plants in pots for forcing on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

J. FIDLER, MARKET GARDENER, 87, King's Road, Reading.

Has to dispose of 500 Stools of LINNEUS RHUBARB for Forcing, or can be divided into eight or ten plants for planting-out. Price, from 1*s.* to 1*s.* 6*d.* per stool, cheaper by the 100. Also young roots for planting-out, from 4*s.* to 6*s.* per dozen. Also 200 plants of ROYAL ALBERT, the earliest, high in colour, which I consider the best in cultivation, at 6*s.* per dozen.

To the Trade.

DECORATIVE PLANTS FOR CHRISTMAS.

W. M. CROWE has a large stock of the following, in excellent condition:—

DRACÆNAS—amabilis, terminalis, stricta, Baptisti, congesta, gracilis.

PALMS—Corypha australis, Latania borbonica, Phœnix reclinata, &c.

Azaleas in flower, Lily of the Valley, Ficus elastica, Aspidistras, Grevilleas, green and variegated Aralias, Ferns in variety. Prices on application. An inspection is solicited.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

SEED POTATOS.

BEAUTY OF HEBRON,
MAGNUM BONUM.

FRUIT TREES.

BLACK CURRANT,
RED CURRANT,
GOOSEBERRY.

Apply—

R. BATH, CRAYFORD.

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Vitex vitifolia sylvestris

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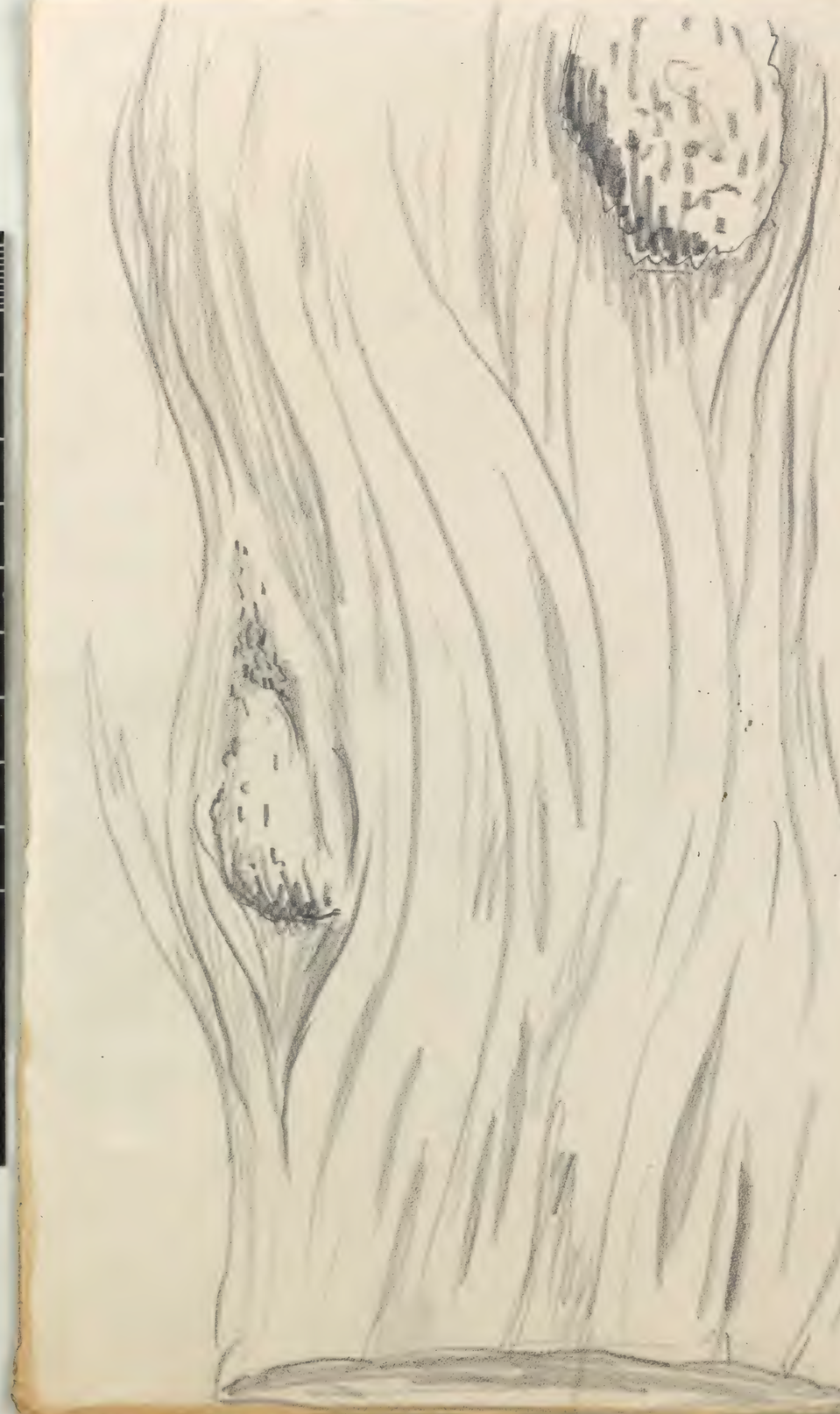

Part of the trunk
of Vitis vinifera
sylvestris preserved
in the Museum Florentin
" della tenuta delle grotte
di Populonia. 1856

Missouri Botanical Garden
George Engelmann Papers

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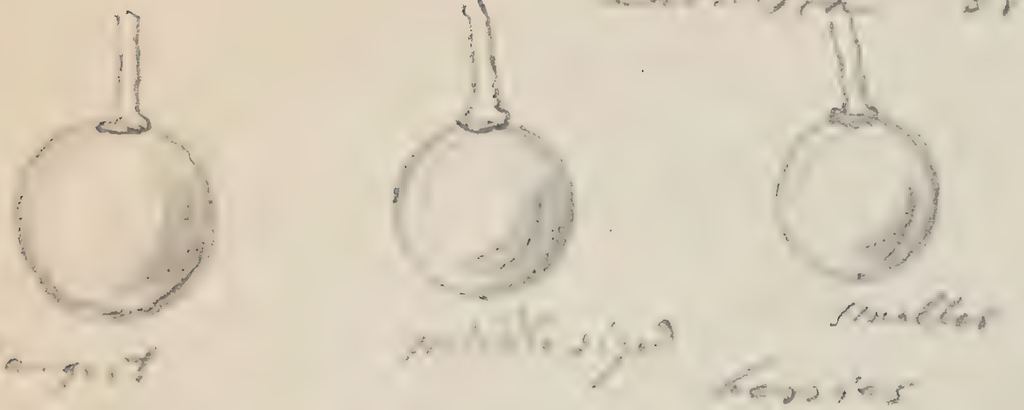
Bulbi vittatae sylvestris

Cabossa or Bocca or Zampino of the volcano

C. No 613. 1868

presented in Alcohol in the Museo Florentino

from Bosco di Berignone
presso S. Lorenzo di Volterra
Sept 1857



largest

middle sized

smaller

with 4, usually with 2 or 3, smallest with only one seed

Linnaea 7. 16.

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MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN LIBRARY

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297

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PLANTS

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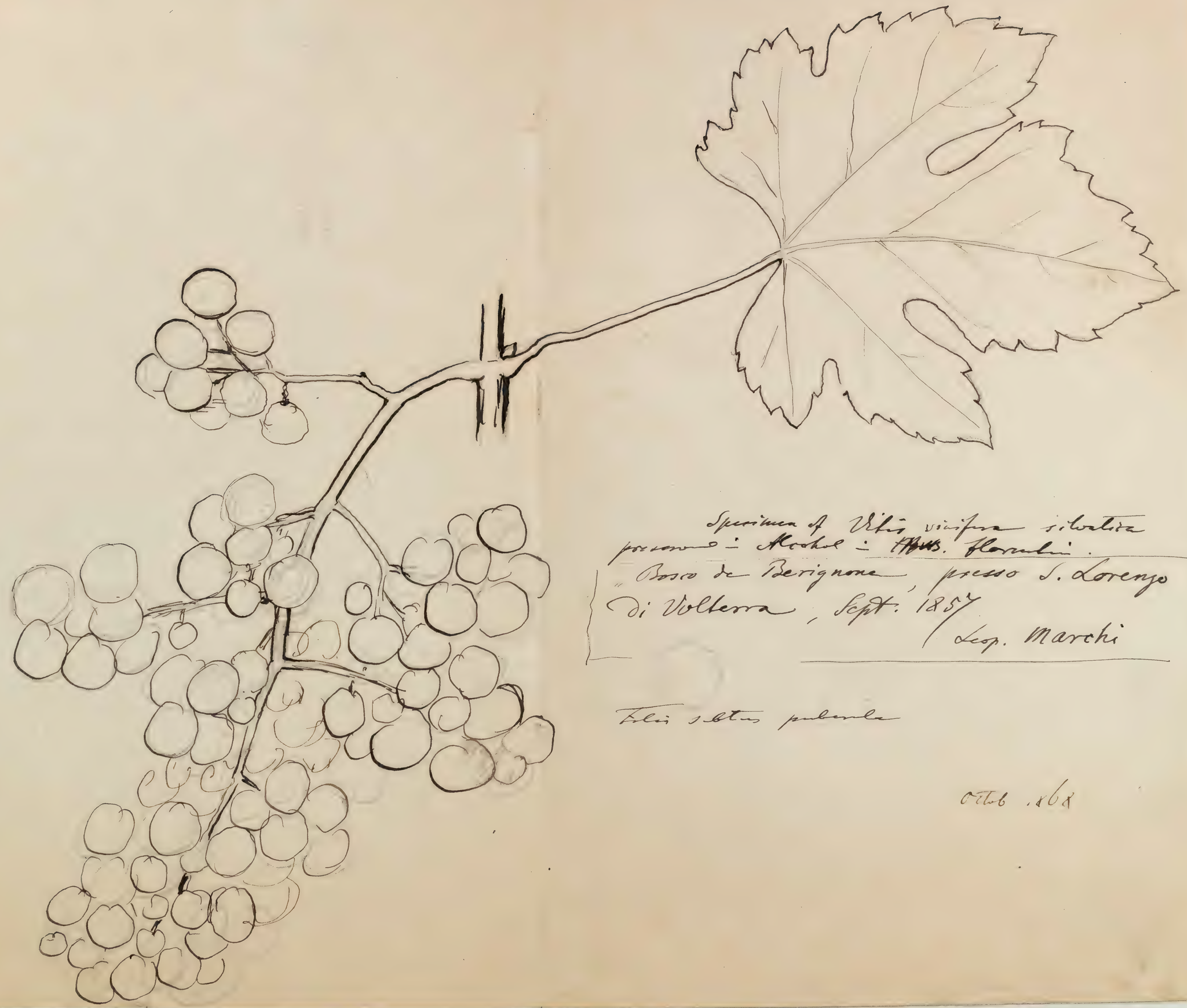

Specimen of Vitis vinifera silvatica
procumbens - Moebel - Hbus. Florentini.
" Bosco de Berignone, presso S. Lorenzo
di Volterra, Sept. 1857
Leop. Marchi

Folii subtus pubescula

Oct. 1858

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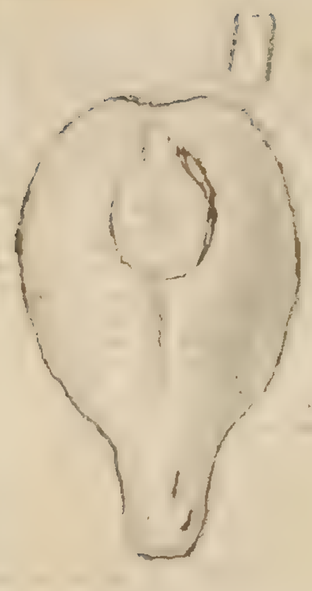
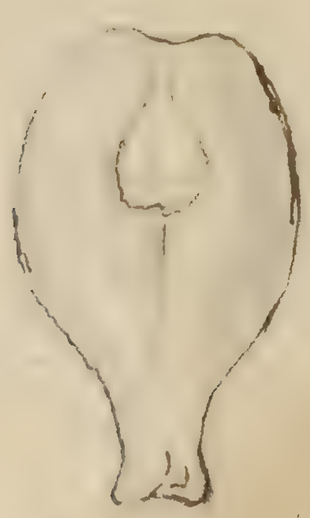
Feb 1875

295

Riesling



Gutedel



Brauner Burgunder

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MISSOURI BOTANICAL
GEOLOGICAL SURVEY

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Editorial Department.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

PAGET'S SURGICAL PATHOLOGY.

[Continued.]

Mr. Paget embraces in his theory the doctrine of complemental nutrition, first taught by C. F. Wolff, illustrating the subject as follows:

"A great change in nutrition rarely takes place in a single organ at a time; for example, the growth of the beard at the period of puberty in man, the growth and perfection of the plumage of the bird at breeding time; but as in man, when the development of the genital organs is prevented, that of the beard and all other external sexual characters is, as a consequence, hindered, so in birds, when the breeding season ends, and the sexual organs pass gradually into their periodic atrophy, at once the plumage begins to assume the pale and more sober colors, which characterizes the barrenness of winter." He next refers to certain interesting specimens presented to the museum by Sir Philip Egerton, showing the interesting fact, "that if a buck be castrated while his antlers are still covered with velt, their growth is checked, they remain as if truncated, and irregular nodules of bone project from their surfaces." "The fact is not, hitherto, explained; it is inexplicable, by believing that the materials which, in the formation of these organs of external sexual character, are removed from the blood, leave or maintain the blood in the state necessary for the further development, growth and active function of the proper sexual or reproductive organs." "The concurrent development of the thymus gland and air breathing organs during the body's growth of the thyroid gland and the brain, (instances

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

298-A

2.—*Monthly Mean of Temperature, Fahrenheit.*

JANUARY.

YEAR.	6 A. M.	9 A. M.	12 M.	3 P. M.	6 P. M.	9 P. M	MEAN OF MONTH.
1861	26.9	29.5	35.3	37.4	33.5	30.8	32.2
1862	27.1	27.3	30.1	30.7	29.5	28.5	28.9
1863	31.9	34.0	39.4	41.2	38.3	36.1	36.8
1864	22.6	25.2	32.6	35.1	31.5	28.0	29.2
1865	21.9	24.2	31.5	33.1	30.2	27.9	28.1
1866	27.0	29.1	34.8	36.8	33.8	31.5	32.2
Mean	26.2	28.2	33.9	35.7	32.8	30.5	31.2

FEBRUARY.

1861	34.2	35.4	43.7	46.7	42.8	39.7	40.4
1862	23.9	27.0	33.6	35.9	31.9	29.2	30.2
1863	31.3	33.7	38.7	39.4	36 6	34.4	35.7
1864	30.4	34.4	42.2	45.5	40.9	36.4	38.3
1865	33.4	36.1	41.7	43.3	39.4	36.8	38.4
1866	27.3	30.0	37.0	38.7	35.2	32.5	33.4
Mean	30.1	32.8	39.5	41.6	37.8	34.8	36.1

3.—*Monthly Mean of Relative Humidity.*

JANUARY.

YEAR	6 A. M.	9 A. M.	12 M.	3 P. M.	6 P. M.	9 P. M.	MEAN OF MONTH.
1861	.....	.....	.....	.....	.....	.....	72.2
1862	91.5	87.5	78.5	79.0	85.2	90.0	85.3
1863	94.1	83.9	75.0	71.9	79.3	86.0	81.7
1864	90.8	79.3	65.9	62.7	75.4	79.8	75.6
1865	89.3	77.5	64.3	62.8	73.7	79 9	74.6
1866	87.1	77.1	67.2	65.3	74.6	79.1	75.1
Mean	90.6	81.1	70.2	68.3	77.6	82.9	77.4

FEBRUARY.

1861	.....	.....	.....	.....	.....	.....	63.3
1862	89.1	79.2	65.8	61.5	72.2	75.5	73.9
1863	94.1	83.9	75.0	71.9	79.3	86.0	81.7
1864	79.0	65.0	53.5	49.0	59.9	70.0	62.7
1865	86.2	73.8	63.7	60.8	70.8	76.7	72.0
1866	85.3	70.8	62.9	59.5	68.6	76.5	70.6
Mean	86.8	74.5	64.2	60.5	70.2	76.9	70.7

Errata. In the last No. of *Journal*, on page 70, line 6, for the word "*destination*" read *declination*.

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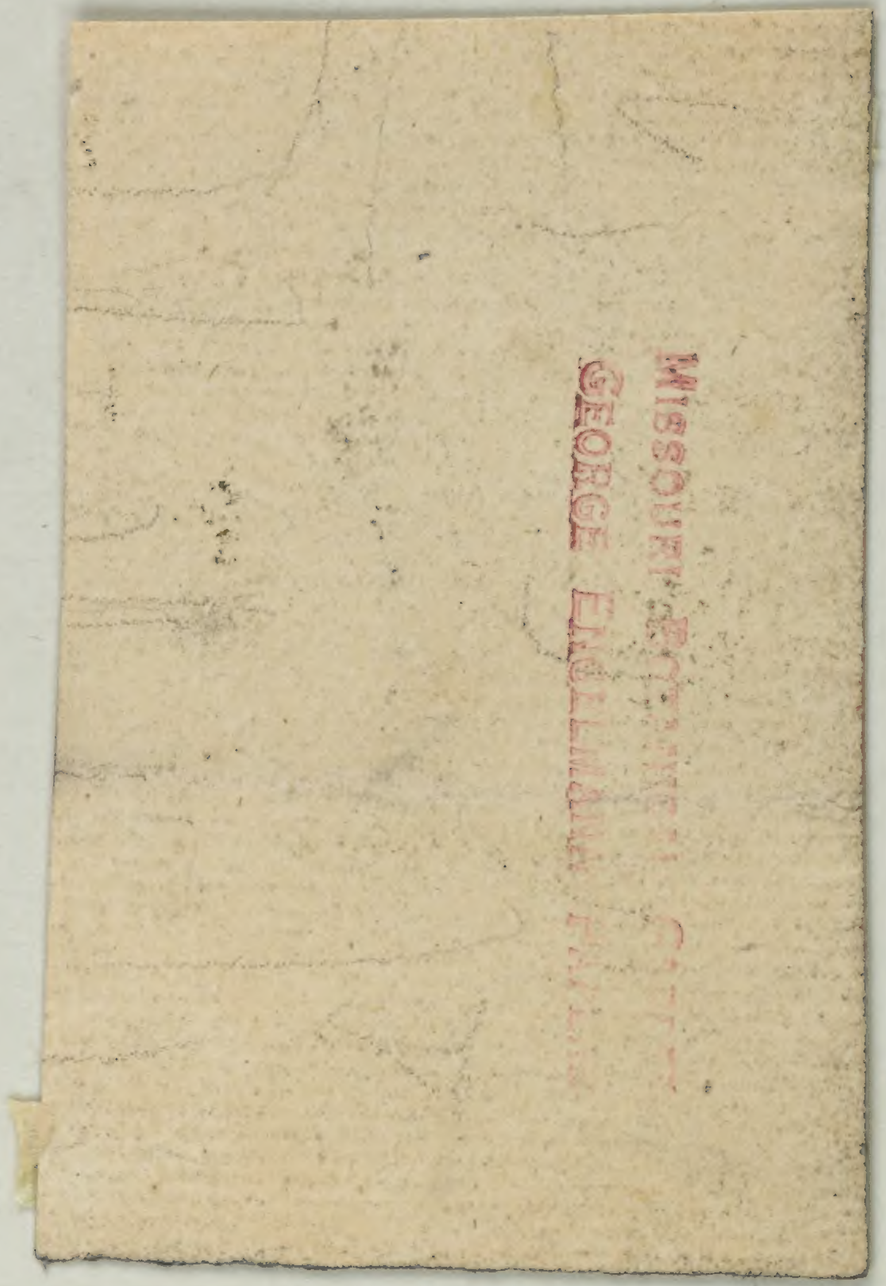
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